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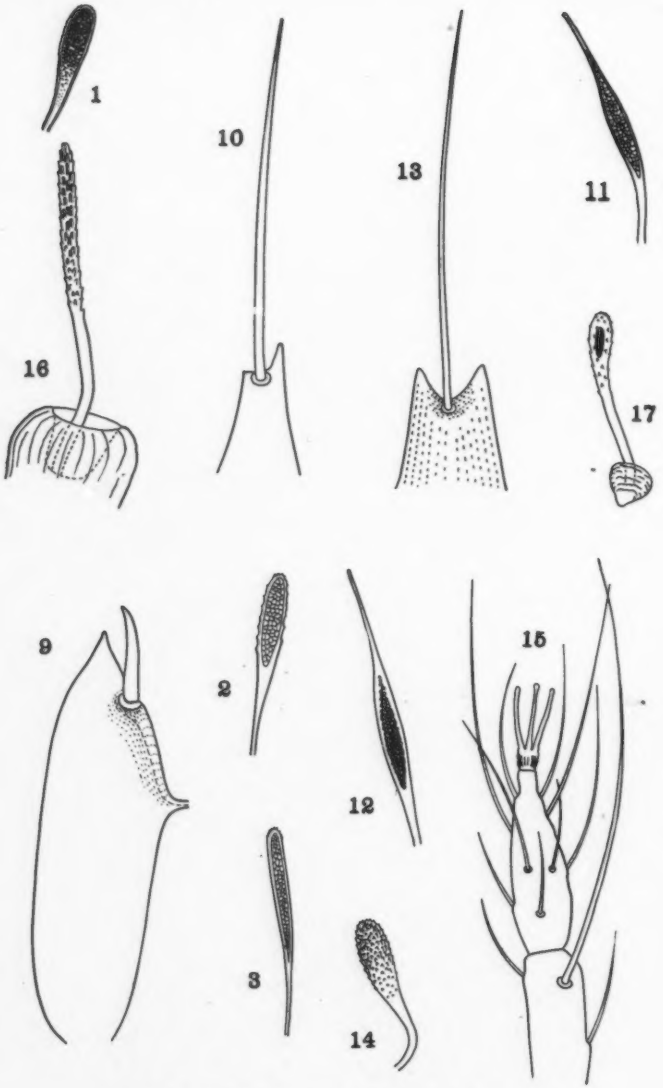


BEETLE-MITE FAUNA OF MARY'S PEAK.—EWING.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXIX. MARCH, 1918. No. 3.

CONTENTS:

Ewing—The Beetle-Mite Fauna of Mary's Peak, Coast Range, Oregon (Acarina)..... 81
Tillyard—The Micropterygidae Not of the Jugate Type (Lep.)..... 90
Robertson—Some Genera of Bees (Hym.)..... 91
Genuine Entomological Enthusiasm... 92
Sell—Notes on the Hibernating of the Belted Cucumber Beetle (Col.)..... 93
Williams—The Genus Lycaena, Enoptes Group (Lep.)..... 99
Rehn and Hebard—A New Species of the Genus Nemobius from California (Orthoptera; Gryllidae; Gryllinae)..... 102
Rohwer—Notes on and Descriptions of the Nearctic Woodwasps of the Genus Xiphydria Latreille (Hym.) 105
The Rippon Collections go to the National Museum of Wales..... 111
British Museum not to be used for Government Purposes..... 111
Editorial—An Appeal for Co-operation 112
Malloch—Another European Anthomyiid in Illinois (Diptera)..... 113
One Hundred and Fifty Years of Collecting..... 113
New Entomological Officials in Minnesota..... 113
Mr. Schaus's Collecting in Guatemala 113
New York Entomological Society Fund 114
Weiss—Gracilaria zachrysa Meyrick in New Jersey (Lep.)..... 114
Howard—An Unusual Bumblebees' Nest (Hym.)..... 114
Wickham—Feeding Habits of a Harvest Spider (Phalangida)..... 115
Entomological Literature..... 116
Review of Oberthür: Études de Lepidoptérologie Comparée..... 118
Review of Escomel: The Latrodectus mactans and the Gliptocranium gasteracanthoides in the Department of Arequipa, Peru..... 118
Doings of Societies—Feldman Collecting Social (Coleop., Dipt.)..... 119

The Beetle-Mite Fauna of Mary's Peak, Coast Range, Oregon (Acarina).

By H. E. EWING, Iowa State College, Ames, Iowa.

(Plate III.)

Studies of a mountain flora or fauna have usually had a special fascination to most naturalists. Especially is this the case where the mountain flora or fauna studied is at such an altitude as to belong to a different life zone from that of the surrounding country. While located in Oregon the writer had such an opportunity of studying a mountain fauna and its relation to that of the surrounding region belonging to a different life zone. For several summers I made collections from the top of Mary's Peak, and also from surrounding regions. Mary's Peak is one of the Coast Range Mountains of western Oregon. It is in Benton County, and is situated about 15 miles southwest of the town of Corvallis, the county seat.

This mountain is the highest of the whole region in which it is situated. It rises to a height of about 4,000 ft. above the sea level, and can be seen from many points of the Willamette Valley, with its long "hog-backed" north spur and its precipitous south slope. Beginning at its base Mary's Peak is densely wooded, and continues so almost to its very top. The entire top, including a considerable region to the southwest, is quite bare of trees, but is thickly covered with a heavy growth of grass. The only places that are somewhat open below this grassy region are a few along the streams which rise from the base of the snowline. Snow stays on the top of the mountain for six or eight months of the year and, around the base of the grass land, drifts do not melt away until June or July. The forest trees found at the base are chiefly Douglas fir with a few Pacific coast white oaks. Higher up are cedars, and near the top the noble fir. Along the streams are thimbleberries and vine maples. There is a good rainfall over the whole of the mountain, and the vegetation is luxurious.

The types of the new species and varieties described below are in the author's collection.

A List of Species and Varieties Recorded From Mary's Peak, Together With Descriptions of New Ones.

Family Oribatidae.

Eupelops monticolus n. sp. (Pl. III, fig. 1).

Color of species a chestnut brown. Lamellae very large, of about equal width throughout, and almost as long as the cephalothorax. Pseudostigmatic organs extending forward, clavate, and slightly pectinate. Abdomen about as broad as long, evenly rounded behind, and bearing a few minute hairs. Genital opening roughly rectangular and situated about one and one-third times its length in front of the anal opening. Anal opening larger than the genital opening, somewhat circular in outline, and situated about two-thirds its length from the posterior margin of ventral plate. Tarsus of leg I about equal to tibia in length. Integument of lamellae and pteromorphae irregularly tuberculate. Length, 0.48 mm.; width, 0.33 mm.

From top of Mary's Peak, Oregon; in moss; by the writer. Three specimens obtained.

Eupelops monticolus Ewing, var. **subborealis** n. var. (Pl. III, fig. 2).

This variety is somewhat smaller than the type. The pseudo-

stigmatic organs are longer and subfusiform in shape instead of being clavate. The lamellae, also, are not so conspicuous. Length, 0.46 mm.; breadth, 0.32 mm.

From Corvallis, Oregon; under a log; by the writer.

Achipteria oregonensis n. sp. (Pl. III, fig. 3 and text fig. 4).

A very dark brown, smooth species. Lamellae extending beyond the tip of the cephalothorax, and each ending in a cusp-like point. Lamellar hairs reaching to about the tips of the lamellae, curved, pectinate, and each situated on the inner margin of the free part of the lamella near the base. Interlamellar hairs, long, curved, simple (or minutely pectinate), and not reaching the tips of the lamellae. Pseudostigmatic organs extending forward, subfusiform, and simple. Abdomen almost as broad as long, evenly rounded behind, and hairless above. The long cusps of pteromorphae are curved outward and downward toward their tips, and do not reach the tip of cephalo-

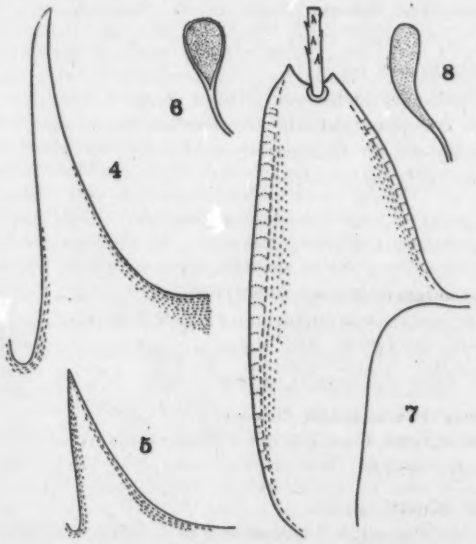


Fig. 4.—*Achipteria oregonensis* n. sp. Cusp of right pteromorpha, dorso-lateral aspect.
Fig. 5.—*Achipteria oregonensis* n. sp., var. *borealis* n. var. Cusp of right pteromorpha, dorso-lateral aspect.
Fig. 6.—*Jugatala lamellata* n. sp. Left pseudostigmatic organ seen from above.
Fig. 7.—*Jugatala lamellata* n. sp. Left lamella from above.
Fig. 8.—*Oribatella acuta* n. sp. Left pseudostigmatic organ from above.

thorax. Genital opening subrectangular, smaller than anal opening, and situated a little more than its greatest diameter in front of the latter. Legs long; claws heterodactyle. Length, 0.71 mm.; width, 0.53 mm.

From Corvallis, Oregon; on ground under an old piece of wood; by the writer. Several specimens. This species has a variety, found at the top of Mary's Peak.

Achipteria oregonensis Ewing, var. **borealis** n. var. (Text fig. 5).

Differs from the type in being smaller, in having shorter cusps to the pteromorphae, and in having the lamellar hairs less curved. Length, 0.51 mm.; width, 0.39 mm.

From the top of Mary's Peak, Oregon; under a rotting log; by the writer. Only a single specimen secured.

Jugatala lamellata n. sp. (Text figs. 6 and 7).

A rather large, chestnut brown species. Lamellae very large, attached to cephalothorax for about one-half their length, the free anterior part of lamellae about twice as broad as the attached posterior part, and ending in two cusps, the outer being the longer. Lamellar hair situated between lamellar cusps; curved, pectinate, and almost as long as the lamella. Pseudostigmatic organs capitate and simple. Abdomen almost as broad as long, and sparsely clothed with curved, pectinate setae. Pteromorphae large, rounded on their ventral margins. Genital covers smaller than anal covers and situated about twice their length in front of the latter. Posterior legs not extending beyond the tip of abdomen. All the legs provided with long, almost subequal claws. Length, 0.77 mm.; width, 0.53 mm.

From the top of Mary's Peak, Oregon; under a moist stone; by the writer. From Spenson, Oregon; on rotting vegetable material, by H. F. Wilson. Three good specimens obtained. The type from Spenson, Oregon.

Ceratozetes clavilanceolata (Ewing).

Recorded from top of Mary's Peak, Oregon; under rotting logs; by the writer.

Oribatella minuta Banks.

Recorded from top of Mary's Peak, Oregon; in moss; by the writer. Recorded also from Corvallis, Oregon: under bark of a log; by the writer.

Oribatella acuta n. sp. (Pl. III, fig. 9, and text fig. 8).

A smooth, dark chestnut brown species. Lamellae very large, attached to the cephalothorax for over one-half their length, and each

ending in a sharp point. Lamellar hairs short, stout, simple, and curved; slightly surpassing the tips of lamellae. Pseudostigmatic organs short, subcapitate, simple, and extending forward. Abdomen longer than broad, sparsely clothed with rather short, strongly curved, simple setae. Pteromorphae large, attached to abdomen for over one-half its length, and rounded below. Genital opening circular, much smaller than anal opening and situated about one and one-half times its diameter in front of the latter. Legs rather short; last pair not reaching the tip of abdomen; claws heterodactyle. Length, 0.54 mm.; width, 0.39 mm.

From the top of Mary's Peak; under rotting logs and in moss; by the writer. Many specimens. This species belongs to that group of Oribatellas that have the lamellae similar to those of the genus *Achipteria* Berlese.

Family NOTHRIDAE.

Liacarus bidentatus n. sp. (Pl. III, fig. 10).

A rather large, chestnut brown, shiny species. Lamellae extending almost to tip of rostrum, their anterior third free, and each ending in a small inner cusp. Lamellar hairs long, straight, apparently simple; each arising from tip of lamella outside of cusp, and extending far beyond the tip of cephalothorax. Pseudostigmatic organs simple, swollen toward base, beyond which they are setiform. Abdomen almost as broad as long, hairless above. Genital opening somewhat shield-shaped, very much smaller than anal opening, and situated about twice its greatest diameter in front of the latter. Legs long; claws heterodactyle. Length, 0.91 mm.; width, 0.62 mm.

From top of Mary's Peak, Oregon; under a rotting log, and under a moist stone; by the writer. From Corvallis, Oregon; under logs; by the writer. From Cascade Mountains along Santiam River; under a log; by the writer. The description here given is based on the type specimen from Mary's Peak, under a moist stone. The specimens from Corvallis are slightly larger than the type.

Liacarus robustus n. sp. (Pl. III, fig. 11).

A large, almost black, shiny species. Lamellae about four-fifths as long as cephalothorax, with their anterior third free, and not ending in cusps. Between the free ends of the lamellae is situated a central mucro, which surpasses the tips of the lamellae, but does not reach the tip of the rostrum. Lamellar hairs long, straight, minutely and sparsely pectinate; each arises from the tip of lamella. Pseudo-

stigmatic organs simple, swollen toward their middle, beyond which they are stoutly setiform. Abdomen very large, oval, and without hairs above. Genital opening somewhat shield-shaped, much smaller than anal opening, and situated over twice its greatest diameter in front of the latter. Anterior legs extending beyond the tip of rostrum by about the full length of their tarsi; posterior legs falling considerably short of the tip of abdomen. Length, 1.00 mm.; width, 0.68 mm.

From the top of Mary's Peak, Oregon; under rotting logs; by the writer. From Corvallis, Oregon; under bark of stick lying on ground; by the writer. The specimen from Corvallis is considerably larger than the others. The type from Mary's Peak.

Liacarus aequidentatus n. sp. (Pl. III, figs. 12, 13).

A large, dark brown, shiny species. Lamellae large, practically as long as the cephalothorax, widest toward their middle, and each ending in two small, equal cusps. Lamellar hairs long, straight, simple; each arising from the end of lamella between the two cusps, and extending far beyond the tip of the rostrum. Pseudostigmatic organs swollen toward their middle beyond which they are setiform and minutely and sparsely pectinate. Abdomen large, elongate, and hairless above. Genital opening somewhat shield-shaped, smaller than anal opening, and situated about twice its greatest diameter in front of the latter. Legs long but hind pair not extending beyond the tip of the abdomen. Length, 0.92 mm.; width, 0.61 mm.

From top of Mary's Peak, Oregon; under moist stones; by the writer. From Corvallis, Oregon; under an old piece of wood which was lying on damp ground; by the writer. The single specimen which I have from Corvallis is larger than those obtained from the top of Mary's Peak, but appears to be the same in other respects. The type from Mary's Peak.

Notaspis bipilis Hermann.

Recorded from top of Mary's Peak, Oregon; under a rotting log; by the writer. Recorded also from Corvallis, Oregon; on ground under an old piece of wood; by the writer.

Cepheus flavus n. sp. (Pl. III, figs. 14, 15).

A long, recticulated, rough species. Lamellae very large, covering much of the cephalothorax, and united along their median free part so as to form a hood-like structure overhanging the rostrum. Lamellar and apparently interlamellar hairs also wanting. Pseudostigmatic

organs moderate, recurved, simple, and clavate. Abdomen reticulated above around the margins and along the free-projecting margins of the shoulders, but toward the center above the reticulations pass into a central pitted area. No hairs above. Genital opening subcircular in outline, about equal in size to anal opening, and situated about one-third its longest diameter in front of the latter, which is egg-shaped in outline. Posterior legs not reaching the tip of the abdomen. Tarsal claws subequal. Length, 0.79 mm.; width, 0.47 mm.

From the top of Mary's Peak, Oregon; under rotting logs; by the writer. From Corvallis, Oregon; under a log; by the writer. Description based on type individual from Corvallis. This individual is considerably different from the two specimens from Mary's Peak in that the pseudostigmatic organs are more strongly clavate, also there is a difference in the reticulations of the integument.

Hermanniella punctulata Berlese, var. **septentrionalis** Berlese.

Recorded from the top of Mary's Peak, Oregon; under a rotting log; by the writer.

Hermanniella punctulata Berlese, var. **columbiana** Berlese.

Recorded from the top of Mary's Peak, Oregon; under a rotting log; by the writer. From Mt. Jefferson, Oregon (elevation about 5,000 ft.); under logs; by the writer. From Coast Range Mountains, Oregon; under a log; by the writer.

Hermanniella punctulata Berlese, var. **robusta** n. var. (Pl. III, fig. 16).

Differs from the type in being much larger. Measurements of type (Berlese): "Ad 540 μ long., 380 μ lat." Measurements for var. *robusta* n. var.: Length, 0.81 mm.; width, 0.50 mm.

From top of Mary's Peak, Oregon; under a rotting log; by the writer. From Lake Permelia, Oregon (about 4,000 ft.); under moist dead wood lying on ground; by the writer. No differences noted between specimen from Mary's Peak (Coast Range) and those from Lake Permelia (Cascades). The type from Mary's Peak.

Hermanniella punctulata Berlese, var. **occidentalis** n. var. (Pl. III, fig. 17).

Considerably smaller than the foregoing variety. Pseudostigmatic organs more strongly clavate than in most of the varieties. Hind pair of legs extending to or beyond the tip of the abdomen. Length, 0.68 mm.; width, 0.40 mm.

From the top of Mary's Peak, Oregon; under a rotting log; by the writer. From Coast Range Mountains, Benton County, Oregon; under a log; by the writer. Two specimens, the type from Mary's Peak.

Family HOPLODERMATIDAE.

Phthiracarus maximus Ewing.

From the top of Mary's Peak, Oregon; under rotten logs; by the writer. From Coast Range Mountains, Benton County, Oregon; under logs; by the writer. From Corvallis, Oregon; under a log; by the writer.

THE RELATION OF THE FAUNA OF THE TOP OF MARY'S PEAK TO THAT OF THE REST OF THE COUNTRY AND EUROPE.

Here are recorded 18 specimens and yarieties from the top of Mary's Peak, all coming from far up in the boreal life zone. Of these 18, we find 8 specimens and 4 varieties new to science. In regard to the distribution of these 18 species and varieties we find:

3 are recorded from the top of Mary's Peak only.
7 are recorded both from the top of Mary's Peak and from the surrounding region in the transition life zone.
3 are recorded from both the Coast Range and Cascade Mountains.
2 species, recorded from the top of Mary's Peak, have distinct varieties at lower altitudes.
4 species found at the top of Mary's Peak, have been recorded from the eastern part of the United States.
1 species from the top of Mary's peak is known to be widely distributed in Europe.

We find, therefore, that the beetle mite fauna of Mary's Peak, while related somewhat to that of the eastern part of the United States and Europe, is in the main quite distinct. Further, it is equally distinct from the fauna of the Cascade Mountains. Only 3 of the 18 forms recorded from the top of this mountain were also recorded from the Cascade Mountains. This is not because of lack of records from the Cascades, for I have probably as many species from these mountains as from the Coast Range. The beetle mites found on the top of Mary's

Peak are most closely related to those found in lower altitudes of the Coast Range Mountains. Seven of the 18 forms were found at lower altitudes, and in two other cases a slightly different variety was recorded for the lower altitudes. It would be interesting to know how closely the beetle mites from Mary's Peak are related to those of the South Pacific and Asia, but at present we know very little of the mite fauna of these latter regions.

Some Distinctive Features of the Fauna of the Higher Altitudes of Mary's Peak.

One of the most distinctive features of the beetle mite fauna of the eastern part of the United States is the very large number of shiny species in proportion to the rough ones. In this respect we find the fauna of Mary's Peak in harmony with that of the eastern United States. Thirteen of the 18 forms recorded from the top of the mountain are shiny. We note, among other things, 3 species of *Liacarus*, all new. We find 4 varieties of *Hermanniella punctulata* Berlese, the largest number recorded from any one locality. We note the occurrence of a species of the genus *Jugatala* Ewing, a genus in which the pteromorphae are united by a shelf-like chitinous projection from the anterior margin of the abdomen. We note the absence of species belonging to the family *Hypochthonidae*, and the record of only one species of *Hoplodermatidae*.

Explanation of Plate III.

Fig. 1.—*Eupelops monticolus* n. sp. Left pseudostigmatic organ from above.

Fig. 2.—*Eupelops monticolus* n. sp. var. *subborealis* n. var. Left pseudostigmatic organ from above.

Fig. 3.—*Achipteria oregonensis* n. sp. Left pseudostigmatic organ from above.

Fig. 9.—*Oribatella acuta* n. sp. Left lamella from above.

Fig. 10.—*Liacarus bidentatus* n. sp. Tip of left lamella and its lamellar hair from above.

Fig. 11.—*Liacarus robustus* n. sp. Left pseudostigmatic organ from above.

Fig. 12.—*Liacarus aequidentatus* n. sp. Left pseudostigmatic organ from above.

Fig. 13.—*Liacarus aequidentatus* n. sp. Tip of left lamella and its lamellar hair from above.

Fig. 14.—*Cepheus flavus* n. sp. Left pseudostigmatic organ from above.

Fig. 15.—*Cepheus flavus* n. sp. Tarsus and part of tibia of leg I, from above.

Fig. 16.—*Hermanniella punctulata* Berlese var. *robusta* n. var. Left pseudostigma and pseudostigmatic organ from above.

Fig. 17.—*Hermanniella punctulata* var. *occidentalis* n. var. Left pseudostigma and pseudostigmatic organ from above.

The Micropterygidae Not of the Jugate Type (Lep.).

By R. J. TILLYARD, Macleay Fellow in Zoology, Linnean Society of New South Wales.

While carrying out researches upon the phylogeny of the Panorpoid orders, I have made a careful study of the Jugate Lepidoptera. The result of the study of five genera of the family *Micropterygidae* (*sens. lat.*, including the Eriocraniidae) is that I find them all to be, not of the *jugate* type of the Hepialidae, but of a more primitive *jugo-frenate* type, in which the wing-coupling apparatus closely resembles that of the Planipennia, Megaloptera and Mecoptera. On the hind wing, near the base of the costa, there is a strongly developed frenulum of from two to six bristles (usually three or four), which becomes engaged, during flight, in the sinus formed between the dorsum of the forewing and the so-called jugum; this latter is bent *under the fore wing* with its apex pointing outward and forward, and acts as a retinaculum for the frenulum, and not in any way as a jugum or "yoke" for the costa of the hind wing as it does in the Hepialidae. The accompanying figure will explain these points clearly. I will shortly publish a full account of my researches, and only send this short note because of the present-day difficulties and delays in sending communications from Australia to other parts of the world.

a. Base of dorsum of forewing of *Micropteryx aruncella* Scopoli, to show jugal lobe (jugum) turned under the wing. Viewed from beneath. (x 60.) *b.* base of costa of hindwing of same, to show frenulum of three strong bristles. Viewed from above. (x 60.)

Some Genera of Bees (Hym.).

By Charles Robertson, Carlinville, Illinois.

In my paper, "Synopsis of Halictinae," *Can. Ent.*, 34:243-50, 1902, species with pubescent fasciae on the apical margins of the abdominal segments and with the cubital nervures not enfeebled or obsolescent were referred to *Halictus*, while those with the fasciae on the basal margins and the third cubital nervure enfeebled were referred to *Lasioglossum*. It is proposed to subdivide these groups.

H. parallelus Say (*H. occidentalis* Cress.) and *H. lerouxii* Lep. are retained in *Halictus*.

Odontalictus n. gen., with *O. ligatus* (*H. ligatus* Say = *H. armaticeps* Cress.) as the type, is separated on account of the cheeks of the female being produced into a tooth.

Seladonia n. gen., with *S. seladonia* (*H. seladonius* F.) as the type, includes rather small, greenish species, like *S. fasciata, flavipes*, etc.

Curtisapis n. gen., with *C. coriacea* (*H. coriaceus* Sm.) as the type, is separated on account of the serrate hind spurs of the females. The females are more opaque and smaller than in *Lasioglossum*. It includes also *C. fuscipennis* and *forbesii*.

Neotrypetes n. gen., with *Trypetes productus* as type, has the second ventral segment of the male chitinous on the sides and membranous in the middle. The first segment is larger, is produced over the second and is clasped by the apical dorsal segment. In the type of *Trypetes, T. truncorum*, the first segment is not produced. The second is larger and the apex of the last dorsal segment is pressed against it. In *Trypetes* male the principal ventral segment is the second, while in *Neotrypetes* male the first is the principal one.

Zaperdita n. gen., with *Perdita maura* as type, has the maxillary palps consolidated. It might properly be referred to *Geoperdita*, but that genus is said to have only three joints to the labial palps.

Heterosarus n. gen., with *Calliopsis parvus* as type, differs from *Pseudopanurgus* in having the tibial scopa of simple hairs. *Pseudopanurgus* has a plumose scopa and collects pol-

len exclusively from Compositae, while *Heterosarus* collects pollen from a variety of flowers.

Epimelissodes Ashm.—This genus was based on the statements that the first and second cubital cells were subequal and the maxillary palps three-jointed. In Trans. Acad. Sci., St. Louis, 10:53, I have pointed out that the second cubital cell is often smaller than the first and the maxillary palps four-jointed. However, I would retain the genus for the three species whose males fall together in my table, Trans. Am. Ent. Soc., 31:369. These are *E. atripes, obliqua* and *illinoensis*.

Zaodontomerus Ashm.—The genus was defined as having the maxillary palps four-jointed and the hind femora of the males with a large tooth beneath. In Trans. Acad. Sci., St. Louis, 10:54, I referred *C. calcarata* to *Ceratina* because, while it had the toothed femora, it had six-jointed maxillary palps. But I think it is better to refer it to *Zaodontomerus* without regard to the joints of the palps.

The females of *C. dupla* and *Z. calcaratus* have never been identified. I certainly have females of both which I cannot distinguish.

In a copy of his paper sent me, Ashmead made a marginal note that *o* had been omitted from the printed *Zadontomerus*. It seems to me that it was correct to elide the *o*.

Sarogaster nom. nov.—This is substituted for *Gnathodon*, which is preoccupied in Mollusca. The type is *S. georgicus* (*Megachile georgica* Cress.).

Genuine Entomological Enthusiasm.

Various numbers of the *Entomologist* (London) during the year 1917 contain "Notes on some of the Lepidoptera of the British Line in France," by Capt. H. D. Smart, Royal Army Medical Corps, wherein the author remarks: "From the nature of my occupation, serious collecting has been impossible, and the insects taken or observed are the result of day-time rambles. Collecting by night and by the rearing of larvae have both been impossible. Often I have had no net, and the difficulty of using a net in trenches needs experience for its proper appreciation." (Jan., 1917). In a later installment is a reference to "the time when a shrapnel bullet put an end to my continental activities." (Oct., 1917). In spite of all the difficulties and dangers, Capt. Smart has noted many species of almost all groups of Lepidoptera.

Notes on the Hibernating of the Belted Cucumber Beetle (Col.).

By R. A. Sell, Houston, Texas.

Owing to the absence of Dr. J. S. Huxley, who suddenly decided to answer the call for England's sons to enter the war, the work of 1916-17 in continuation of the experiments with Diabroticas, begun Sept. 16, 1915, was not carried out according to plans which had been worked out. Extensive experiments with *12-punctata* and the saddled cucumber beetle were abandoned when Mr. Simmons took a year's leave of absence and the Department of Biology of Rice Institute was compelled to meet the demands of a heavy enrollment of undergraduate students.

The experiments with the belted cucumber beetle (*Diabrotica balteata* Lec.) were carried through under conditions that seemed to be satisfactory in every way except that it was an unusual winter. Cold weather set in much earlier than common and the usual periods of prolonged rainy weather did not occur. There were no long periods of very warm weather and the temperature did not stand as high as usual. The barometric readings showed less variations than usual. No attempt has been made to explain what effect these weather conditions had upon the insects but it is quite probable that they prepared for hibernation earlier than usual because of the low temperature.

All of the specimens used in the following experiment were obtained at market gardens within eight miles of Houston, Texas.

Preparation for Hibernating.

During the latter part of October these beetles were especially destructive to the foliage of various kinds of plants. They were particularly destructive to egg plant and late beans but many of them could be found in the cane fields, working among the stumps and the younger leaves. Undoubtedly this represented a long period of eating.

About 340 beetles were brought in from the fields on Novem-

ber 7-9-11. While they appeared to be very lively they ate sparingly. Both sexes were so plump and heavy that males were often mistaken for females. They seemed to be nervous and would fly frequently, even without an apparent cause, but when they were subjected to the "Fatigue Experiment" as used on 12-*punctata* (Journal of Economic Entomology, Vol. 9, p. 554), they proved to be decidedly lacking in power of endurance.

The first pair put to the real test, rated as No. 1, made the following record:

Nov. 11, fatigued in 8 min.
Nov. 12, fatigued in 11 min.; ate very little.
Nov. 13, fatigued in 8 min.
Nov. 14, fatigued in 14 min.; nibbled in a mechanical manner.
Nov. 16, fatigued in 16 min.
Nov. 17, fatigued in 12 min.; would not eat.
Nov. 18, fatigued in 14 min.; very restless.
Nov. 19, fatigued in 8 min.; stupid.
Nov. 20, fatigued in 18 min.; active, ate fairly well.
Nov. 21, fatigued in 14 min.; would not eat.
Nov. 22, fatigued in 8 min.; stupid.
Nov. 23, fatigued in 6 min.; male flew across the room only two times.
Nov. 25, neither would fly.

Pair No. 2.

Nov. 11, fatigued in 11 min.
Nov. 12, fatigued in 10 min.
Nov. 13, fatigued in 7 min.; male indisposed.
Nov. 14, fatigued in 11 min.; both ate.
Nov. 16, fatigued in 12 min.
Nov. 17, fatigued in 15 min.; male especially lively.
Nov. 18, fatigued in 11 min.; both restless.
Nov. 19, fatigued in 14 min.; ate very little.
Nov. 20, fatigued in 12 min.; not very active.
Nov. 21, fatigued in 16 min.; restless.
Nov. 22, fatigued in 19 min.; lively.
Nov. 23, fatigued in 14 min.; refused food.
Nov. 25, fatigued in 9 min.; male did not fly.
Nov. 26, fatigued in 12 min.; stupid.
Nov. 28, fatigued in 4 min.; male would not fly.
Nov. 29, fatigued in 8 min.; very stupid.
Nov. 30, fatigued in 7 min.
Dec. 2, neither would fly.

Pair No. 3.

Nov. 11, fatigued in 12 min.; lively.
Nov. 12, fatigued in 16 min.; ate heartily.
Nov. 13, fatigued in 18 min.; female excitable.
Nov. 14, fatigued in 16 min.; female deposited three eggs, five hrs.
Nov. 16, fatigued in 12 min.; female seemed normal.
Nov. 17, fatigued in 17 min.; both ate well.
Nov. 18, fatigued in 14 min.; restless.
Nov. 19, fatigued in 12 min.; neither would eat.
Nov. 20, fatigued in 16 min.; male stupid.
Nov. 21, fatigued in 16 min.
Nov. 22, fatigued in 14 min.; male flew about four min.
Nov. 23, fatigued in 9 min.; male flew one min.
Nov. 25, fatigued in 5 min.; male would not fly.
Nov. 26, fatigued in 6 min.; male more lively.
Nov. 28, fatigued in 4 min.; male would not fly.
Nov. 29, neither would fly.

Pair No. 4.

Nov. 11, fatigued in 14 min.
Nov. 12, fatigued in 12 min.
Nov. 13, fatigued in 14 min.; lively.
Nov. 14, fatigued in 16 min.; both ate.
Nov. 16, fatigued in 18 min.; both lively.
Nov. 17, male died.
Nov. 18, fatigued in 12 min.; another male.
Nov. 19, fatigued in 14 min.; active.
Nov. 20, fatigued in 18 min.; both took food.
Nov. 21, fatigued in 16 min.; rather nervous.
Nov. 22, fatigued in 19 min.
Nov. 23, fatigued in 17 min.; male died two hours after test.
Nov. 25, fatigued in 20 min.; female alone.
Nov. 26, fatigued in 12 min.; female alone, stupid.
Nov. 28, fatigued in 8 min.; female alone, more lively.
Nov. 29, fatigued in 10 min.; female alone, stupid.
Nov. 30, fatigued in 12 min.; female alone.
Dec. 2, refused to fly.

Pair No. 5.

Nov. 11, fatigued in 15 min.
Nov. 12, fatigued in 16 min.; ate heartily.
Nov. 13, fatigued in 14 min.
Nov. 14, fatigued in 18 min.; lively.
Nov. 16, fatigued in 19 min.; very lively.
Nov. 17, fatigued in 18 min.; ate heartily.

Nov. 18, fatigued in 14 min.; male rather stupid.
Nov. 19, fatigued in 16 min.; male flew very deliberately.
Nov. 20, fatigued in 8 min.; both stupid.
Nov. 21, fatigued in 12 min.; ate very little.
Nov. 22, fatigued in 11 min.; would not eat.
Nov. 23, fatigued in 8 min.; male flew about three minutes.
Nov. 25, fatigued in 10 min.; both nervous.
Nov. 26, fatigued in 7 min.; male would not fly.
Nov. 28, fatigued in 11 min.; male flew well.
Nov. 29, fatigued in 8 min.; both stupid.
Nov. 30, fatigued in 5 min.; male would not fly.
Dec. 2, fatigued in 7 min.; both stupid.
Dec. 3, fatigued in 4 min.; male would not fly.
Dec. 4, fatigued in 1 min.; male would not fly.

During these experiments each pair was kept in a pasteboard box with a covering of mosquito-bar. They were kept in the laboratory and fresh leaves were supplied when needed. It is well known that insects will not become stupid and lapse into sleep, or partial-sleep, as readily under the unnatural conditions of the best planned laboratory as they will in their natural environment. Accordingly, on Dec. 2, pair No. 3 was placed in the outside laboratory. That night they sought shelter in the soil. When disturbed the next day they seemed anxious to get deeper into the ground, but on Dec. 4 they were quite asleep. This seemed to confirm the assumption that the increasing stupidity and lack of ability or inclination to fly, even when confronted with the stimulus of a hand-bellows and strong, disagreeable odors, was due to a physiological preparation for a period of inactivity.

Observation of Hibernating Habits.

In order to get exact data as to how these insects spend the winter, outdoor insect-cages were provided. These cages were 16 inches square, and were covered on all sides with small-mesh wire screen. The ground served as a floor—the soil being dug up and some leaves and sticks worked in to make it easy for the insects to get as far beneath the surface as they desired to go.

On Nov. 12 the beetles were carefully separated into lots.

In each of ten of these cages 24 beetles were placed—12 males and 12 females—and the cages were numbered from 1 to 10. In addition to the ten cages one cage containing 98 beetles was kept as a reserve and treated in every way like the others. They were supplied with plenty of fresh leaves from day to day but by Nov. 25 comparatively few of them ate with a normal appetite. Following this was a period of inactivity.

An abbreviated outline of a mass of notes follows:

Lot No. 1.

Nov. 22, loss of appetite.
Nov. 26, very restless.
Nov. 30, sluggish, refused food.
Dec. 4, 3 males went into the ground.
Dec. 5, 5 males and 3 females went into the ground.
Dec. 6, 3 males and 9 females went into the ground.
Dec. 8, 1 male went into the ground.
Dec. 10, all in subconscious condition.
Feb. 22, 3 females above ground.
Feb. 23, 7 females and 2 males came out.
Feb. 24, 2 females and 8 males came out.
Feb. 25, 1 male came out. (Investigation showed that the other male was dead).

Lot No. 2.

Nov. 22, feeding contentedly.
Nov. 25, restless.
Dec. 2, sluggish.
Dec. 4, 1 male went out of sight.
Dec. 5, 11 males and 6 females left the leaves.
Dec. 8, 5 females went beneath the surface.
Dec. 9, all in the ground.
Feb. 24, 1 female came out.
Feb. 26, 3 females came out.
Feb. 27, 4 females and 7 males came out.
Feb. 28, 3 females and 3 males came out.
Mar. 3, all out.

Lot No. 3.

Nov. 23, restless.
Nov. 25, restless.
Dec. 2, sluggish.
Dec. 4, 8 males and 1 female out of sight.
Dec. 5, 1 male and 4 females disappeared.
Dec. 6, 2 males and 6 females disappeared.
Dec. 8, 1 male and 1 female disappeared.
Feb. 22, 8 females above ground.
Feb. 23, 3 females and 8 males appeared.
Feb. 25, 3 males appeared.
(In this cage one female was found dead, and one male could not be found).

Lot No. 4.

Dec. 6, all had disappeared.
Feb. 22, first came out.
Mar. 3, all of them were out.

Lot No. 5.

Dec. 5, first one disappeared.
Dec. 12, last one disappeared.
Feb. 24, first ones came out.

Mar. 6, all out but 6 females.
(The 6 females had been destroyed by the larva of a predaceous beetle).

Lot No. 6.

Dec. 4, first ones disappeared.
Dec. 10, all of them were out of sight.
Feb. 22, one female came out.
Mar. 6, all of them were out.

Lot No. 7.

Dec. 2, first one disappeared.
Dec 12, all of them were beneath the surface.
Feb. 22, 5 females came out.
Mar. 2, they were all out.

Lot No. 8.

Dec. 5, 2 males disappeared.
Dec 10, all of them beneath the surface.
Feb. 22, 1 female appeared.
Mar. 5, all of them were out.

Lot No. 9.

Dec. 2, 1 male disappeared.
Dec. 10, the last one disappeared.
Feb. 21, 1 female came out.
Mar. 2, they were all out.

Lot No. 10.

Dec. 4, 8 males, 1 female disappeared.
Dec. 11, all of them had disappeared.
Feb. 23, 4 females came out.
Mar. 2, all of them were out.

Summarizing the above, the insects went into the ground during the nine days, Dec. 4-12 inclusive, and they came out during the fourteen days, Feb. 21 to March 6 inclusive. The longest period possible for a beetle to have remained underground was ninety-two days while the shortest period possible was seventy-one days.

They showed a decided preference for going down along the roots of biennials—the coffee bean is a favorite plant for their winter quarters. In the hibernating condition the legs are drawn up next to the body, the wing covers tightly closed, and the antennae drooped. When taken out of the ground a hibernating beetle is very much asleep. While it can be handled roughly without the least show of life there is a tenseness of the muscles that betrays the real condition. Possibly the quickest way to awaken a beetle from this condition is to put it in the sun.

Color Phases.

It seems pertinent to add to the above a few observations on the baffling question of "color phases" which seem to appear so distinctly and to disappear so completely among the spotted forms of the Diabroticas that they are almost like a mirage. The color phases of the Belted Cucumber Beetle seem to present a

problem as puzzling and as interesting as that of the California Flower Beetle (*Diabrotica soror*).[1] During the latter part of the summer most of them are light green marked with the regulation "belt" of light yellow, but careful observation from day to day will reveal a few individuals that are marked rather sharply—instead of the "belted" effect they present the appearance of being spotted and the spots are nearly white since they have almost lost the yellow shade while the back-ground of green seems to have taken on a deeper shade. When killed and placed in the cabinet such individuals fade out so completely that it is impossible to distinguish them from the regular forms. The proportion of this form increases as the time for hibernating approaches. The "old age" phase seems to be a faded green with an increasing "belted" effect.

The Genus Lycaena, Enoptes Group (Lep.).

By R. C. WILLIAMS. Jr., Philadelphia, Pa.

(Plates IV, V, VI.)

Until recently the species of these butterflies have been confused in collections. In 1911, Dr. Henry Skinner (Ent. News, XXII, p. 259) considered the three names then in use represented but forms of one species. In this he was then justified by the fact that they are extremely close in color and maculation, and all variable, and the types were not available, that of *enoptes* Boisd. being in Europe, *battoides* Behr destroyed and *glaucon* Edwards not fixed.

A further study of the male genitalia, however, showed a remarkable difference in the clasps, and in 1916-17 Drs. Barnes and McDunnough, in their valuable work (Cont. Lep. N. A III, p. 116, p. 213), added a number of names to the list and figured the species and male genitalia.

In the meantime, to definitely place the first species, *enoptes*, which is in Mr. Charles Oberthür's collection at Rennes, France, and which he so beautifully figured (Etud. Lep. Comp. IX. Pl. 237, Fig. 1948 ♂, 1949 ♀) in 1913, I sent to him

[1]Journal of Economic Entomology, Vol. 8, page 515.

preparations of the genitalia of the two California species involved, with a request for a comparison with the type. He promptly forwarded both slides and type to Dr. R. L. Reverdin at Geneva, Switzerland, who made a preparation from the type specimen in the same manner in which mine were made, *i. e.*, with the girdle, clasps and aedoeagus separately mounted, and the photograph of this is reproduced here (Plate IV) thus establishing *enoptes* Boisd. It will be noted that Drs. Barnes and McDunnough had correctly determined the species.

Dr. Reverdin writes that the genitalia agree with those of my specimen which was from Truckee, California, VII, (Sinclair), and states that the aedoeagus of *enoptes* is bilobed at its internal extremity, though this character is only indicated in the photograph.

In addition to the Truckee series of *enoptes*, I have this species, genitalically determined, from Benton County, Oregon, larger in size and differing somewhat in the relative intensity of the maculation from type, but probably not sufficiently to warrant a varietal name.

I also have *enoptes*, genitalically determined, from Eureka, Utah, 7000 ft. VI, 1 (Spalding); Park City, Utah, VII, 5 (Snyder); Stockton, Utah, VI, 13; Chimney Gulch, Golden, Colorado, V (Oslar). These are the *glaucon* of B. & McD.

The second example sent over by me was from an insect from Havilah, California, VI, 19 (Grinnell), resembling the figure of *enoptes* and since named *battoides bernardino* by Barnes and McDunnough, with which it agrees in the male genitalia. That their conception of *battoides* Behr is correct, is confirmed by the fact that there is an insect in the Henry Edwards collection in New York, labelled "Lone Mountain, Lake Tahoe," and in his catalog marked by him "True to type" (of *battoides*), which agrees with the Barnes and McDunnough figure except that it is not quite so strongly marked below.

I have *battoides bernardino*, genitalically determined, from Bodie; Fredalba VII, 23 (Pilate); Southern California (Poling); Techachapi, VII, 4 (Haskin); Nellie, California, VII, 21, (Hewlett) and *battoides centralis* from Jemez Mountains, New Mexico, VII, 18, (Woodgate).

The third species, *glaucon* Edw. or *spaldingi* B. & McD., I received from Mr. B. N. Lehman near Eureka, Utah, at 7500 ft. elevation, twelve years ago, and while recognizing it as unusual and genitalically distinct, I have been unable to convince myself that it is not Mr. Edwards' species. It is this form from Stockton, Utah, that Dr. Skinner had before him, and determined as *glaucon*, and there are two Colorado individuals of this form in Dr. Holland's Edwards collection in Pittsburgh. The species is found in a number of the collector's localities in northern Utah. The type specimens probably were collected near Virginia City, Nevada, and they appear to be lost. Although this locality and the known Utah range of the species are widely separated, the physiographical conditions are similar, and the insect may have a wider range than now appears, especially as Nevada is a State in which relatively little collecting has been done.

I have been unable to find any constant character of color or maculation by means of which to separate *enoptes* and *battoides* but, as pointed out by Dr. Skinner, all of the examples of *glaucon* I have examined show the orange band of the secondaries below, continued on the primaries, and while diminishing in intensity as it approaches the outer angle, nevertheless gives the insect a decidedly *melissa*-like appearance.

Lycaena rita B. & McD. I have not examined genitalically.

The genus *Philotes* in which the above insects have recently been placed, was erected for *sonorensis* Feld., which differs in general appearance from all of our Lycaeninae, so that if *Lycaena* is to be split up, *enoptes* and its allies are entitled to a generic name of their own, but I am inclined to place all of the above, together with *piasus* Boisd., *lygdamus* Dbld., *xerces* Boisd., and the recently re-discovered *pardalis* Behr under *Lycaena* Fab., (type *arion* Linn.), on account of the close and distinctive characters of the aedeoagus, and also of the girdle, tegumen and dorsal hooks, sinking *Phaedrotes* Scud. and *Glaucopsyche* Scud.

Plates IV, V and VI show the armature of the four species *enoptes, battoides, glaucon* and *sonorensis,* in outline, drawn from microscopic projections.

The original insects and accompanying slides of genitalia referred to in this paper are deposited in the cabinet of the American Entomological Society. Thanks are due to Mr. Oberthür and Dr. Reverdin for their kindness and assistance in clearing up the American nomenclature.

EXPLANATION OF PLATES.

Plate IV. ♂ genitalia of type of *Lycaena enoptes* Boisd.

Plate V. Fig. 1, 2, 3, *Lycaena battoides bernardino* B. & McD., Fredalba, California.
Fig. 4, 5, *Lycaena battoides centralis* B. & McD., Jemez Mts., New Mexico.
Fig. 6, girdle *Lycaena enoptes* Boisd.; Benton County, Oregon.
Fig. 7, 8, 9, clasp, aedoeagus and fulcrum; *enoptes*, Eureka, Utah.
Fig. 10, clasp; *enoptes*, Truckee, California.

Plate VI. Fig. 1, 2, 3, *Lycaena glaucon* Edw. Eureka, Utah.
Fig. 4, 5, 6, *Lycaena sonorensis* Feld., Nellie, California.

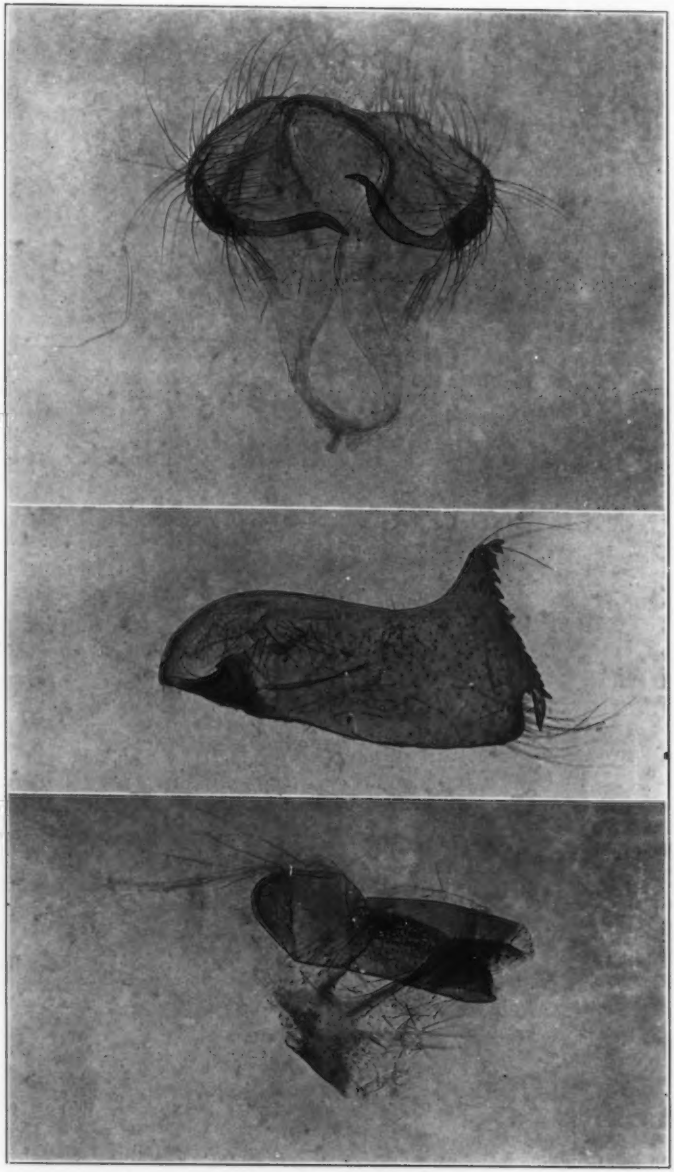
A New Species of the Genus Nemobius from California (Orthoptera; Gryllidae; Gryllinae).

By JAMES A. G. REHN and MORGAN HEBARD, Philadelphia, Pa.

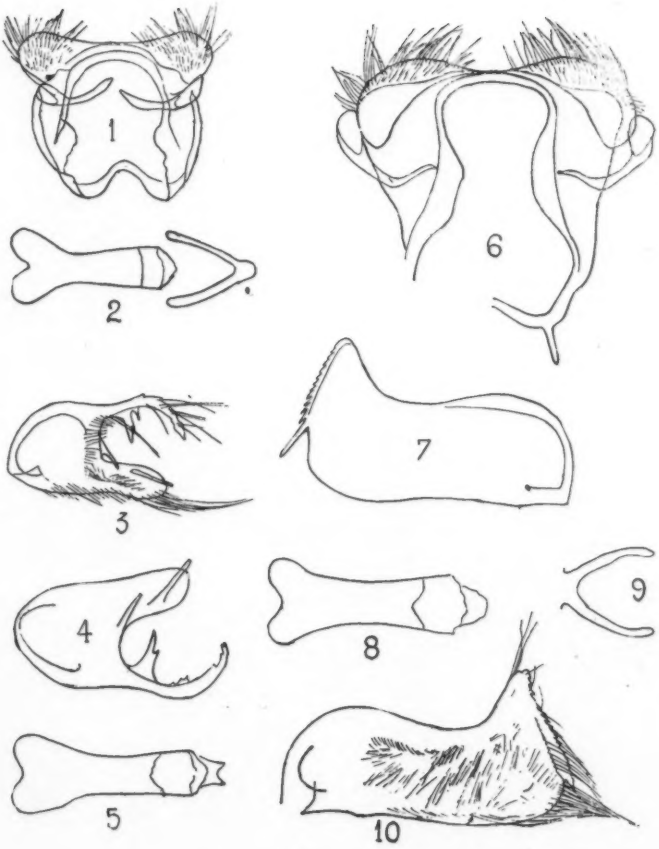
Nemobius eurynotus[1] new species.

The present remarkable species is readily separable from any other of the genus found in the United States by its large size, broad form, general coloration, subobsolete ocelli and extremely short ovipositor, which in proportionate brevity is only equalled by that of *N. carolinus brevicaudus* Bruner. The unequal disto-ventral pair of caudal tibial spurs, however, show the position of the species to be in the first section of the North American forms of the genus and, though very widely separated, it should be placed after *N. panteli* Hebard. Additional material is, in our opinion, necessary to determine whether the present insect should be placed in the same subgenus as that species, *Brachynemobius*, or should be assigned to a distinct and yet undescribed subgenus.

[1] From εὐρύνωτος = broad backed.



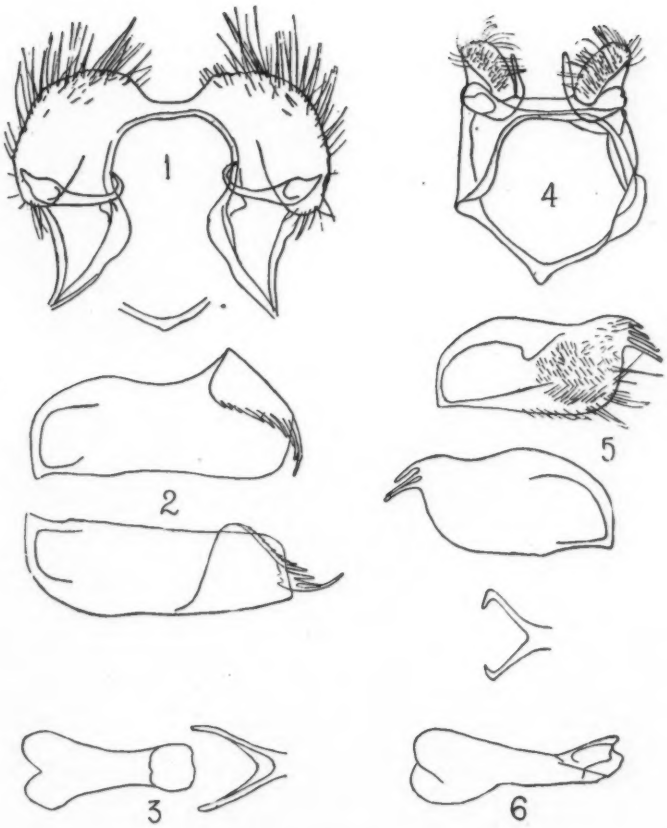
LYCAENA ENOPTES.—WILLIAMS.



LYCAENA ENOPTES GROUP.—WILLIAMS.

1-3, LYCAENA BATTOIDES BERNARDINO.

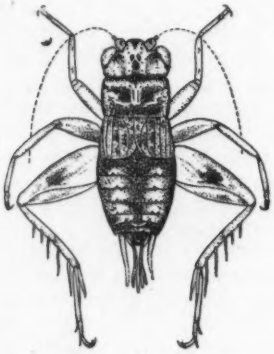
4, 5, L. BATTOIDES CENTRALIS. 6-10, L. ENOPTES.



LYCAENA ENOPTES GROUP.—WILLIAMS.

1-3, LYCAENA GLAUCON. 4-6, L. SONORENSIS.

The general appearance of the present insect resembles rather a diminutive and brilliantly colored example of *Miogryllus verticalis* (Serville), than any species of the genus



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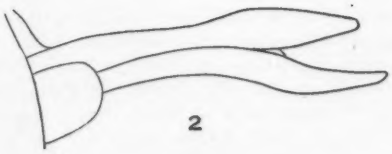

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4

Type of *Nemobius eurynotus* new species.

Fig. 1.—Dorsal view of insect. (x 4.)

Fig. 2.—Lateral outline of ovipositor. (Greatly enlarged.)

Fig. 3.—Latero-internal outline of caudal tibia and tarsus showing spines and spurs (Greatly enlarged.)

Fig. 4.—Latero-external outline of caudal tibia showing spines and spurs. (Greatly enlarged.)

Nemobius in the collections. The color pattern is, however, distinctive, while the excellent characters for the Group Nemobiites prevent any possible confusion with the species of *Miogryllus*.

Type: ♀ ; Berkeley, California. November 18 to 20, 1906. (J. C. Bradley.) [Hebard Collection, Type No. 472.]

Size large for the genus, larger than any of the North American species except *N.* (*Argizala*) *brasiliensis* (Walker); form very robust; surface shining; head and pronotum with hairs reduced in number. Head large, very full and rounded, about as wide as pronotum, width slightly but distinctly greater than depth. Ocelli subobsolete, indicated by inconspicuous minute spots, the surface at these points showing no convexity. Eyes slightly less ample in proportion to size of head than in other North American species. Maxillary palpi as normal for North American species. Pronotal proportions intermediate between those of *panteli* and *brasiliensis*, length distinctly more than half of width. Tegmina much reduced, very slightly longer than pronotum, slightly the more produced at humeral angle, the margin there broadly rounded, the distal margin thence weakly oblique to the very broadly rounded sutural angle; longitudinal veins conspicuous, cross-veinlets very few. Wings probably absent. Ovipositor very short and heavy, about as long as caudal metatarsus, straight.[2] Subgenital plate small, scoop-shaped, the free margin divided into two evenly convex portions, the juncture of which forms a median acute-angulate emargination. Caudal tibia with four internal and four external dorsal spines, which are rather short and heavy for the genus, much as in *panteli;* these have their ventral surfaces concave, with margins microscopically and very minutely serrulate. Caudal tibia with three pairs of distal spurs, of which the ventral pair are unequal in length; longest, dorso-internal spur, two-thirds as long as metatarsus.

Length of body 10., pronotum 1.95, exposed portion of tegmen 2.15, ovipositor 2.35, caudal femur 5.5, caudal tibia 4.2. Width of head 3., pronotum 3., dorsal field of tegmen 2., abdomen at widest point 3.3, caudal femur 2.1 mm.

General coloration shining mummy brown and ochraceous-orange. Head with occiput ochraceous-orange, washed with mars brown caudad of lateral ocellar areas and between these flecks, mesad, supplied with three nearly attingent smaller flecks of the same color;

[2]The valves are distorted distad, each separating from the others, as has been observed in other species of *Nemobius* (see Hebard, Proc. Acad. Nat. Sci., Phila., 1913, p. 453, footnote 51, [1913]), and are apparently much worn, no trace of teeth being found.

interantennal protuberance, face and mouth parts rich blackish chestnut-brown. Maxillary palpi ochraceous-tawny, distal fifth of ultimate joint mummy brown. Pronotum blackish brown with an intricate pattern of ochraceous-tawny. Tegmina mummy brown, the veins dark, tinged with chestnut. Abdomen blackish brown, each dorsal segment with a pair of large cinnamon, irregularly trapezoidal markings which widen caudad. Cerci cinnamon. Subgenital plate and median portion of preceding segment cinnamon-buff. Limbs ochraceous-tawny, heavily washed with cinnamon brown.

The type of this distinctive species is unique.

Notes on and Descriptions of the Nearctic Wood-wasps of the Genus Xiphydria Latreille (Hym.).

By S. A. Rohwer,

Specialist in Forest Hymenoptera, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.

This paper, which is a contribution from the Branch of Forest Insects, Bureau of Entomology, is based on a study of the species of *Xiphydria* in the collections of the National Museum, the Academy of Natural Sciences of Philadelphia, the Public Museum of Quebec and the British Museum. The work is based in the greater part on the collections of the National Museum but contains notes from the species in the other collections. The type of the new species described and the neotypes here designated are in the United States National Museum.

The North American species of *Xiphydria* have been tabulated by Konow (Syst. Zusam. Chalast., pp. 297-315*), but, inasmuch as that author did not have a large collection or access to the types, there are some points which do not accord with the facts. Harrington (Trans. Roy. Soc. Canada sec. 4, 1893) tabulates the Canadian species and MacGillivray (Bul. 22 Conn. Geol. Nat. Hist. Survey, 1917) tabulates the species of the Northeastern States. None of these papers include all of the species so it seems worth while to give a synopsis of the North American species. The larvae of *Xiphydria* are wood borers and confine their attacks to dead or dying branches

* In Zeitschr. syst. Hym. u. Dip., V, 41-59, 1901-05.

of deciduous trees. The following key includes all of the North American species except *basalis* Say and *walshii* Westwood.

Table to the Nearctic Species.

1. Females 2
   Males 8
2. Abdomen rufous or rufo-ferruginous, without spots.....3
   Abdomen black, with pale lateral spots or bands.....4
3. Head and thorax mostly black; prescutum V-shaped, longer than its anterior width; orbital carina extending well above the top of eye .....*abdominalis* Say.
   Body entirely rufo-ferruginous; prescutum U-shaped, the anterior width subequal with the length; orbital carina terminating before the top of eye.....*erythrogastra* Ashmead.
4. Flagellum white .....*maculata* Say.
   Flagellum black 5
5. Posterior orbits and superior orbital area shining, practically impunctate; antennae extending beyond the tegulae, *hicoriae* Rohwer.
   Posterior orbits and superior orbital area opaque with distinct punctures; antennae short not extending beyond the tegulae,..6
6. Second antennal joint distinctly less than half as long as the third and shorter than the fourth; prescutum V-shaped; legs reddish .....*provancheri* Cresson.
   Second antennal joint distinctly more than half as long as the third and subequal with or longer than the fourth; prescutum U-shaped; legs largely black 7
7. Front with irregular raised lines, the area between the antennae and extending to the clypeus with well-defined raised lines; prescutum depressed posteriorly so the transverse rugae of the notauli are complete or nearly complete from notaulus to notaulus; tergites three and four with nearly complete yellow bands .....*canadensis* Provancher.
   Front and face reticulate; prescutum not depressed posteriorly, the notauli complete; tergites three and four with lateral spots, *tibialis* Say.
8. Superior orbital area coarsely sculptured; head sculptured above the supraorbital line; legs reddish.....*provancheri* Cresson.
   Superior orbital area and head above the supraorbital line smooth practically without sculpture (the area behind the ocelli in *maculata* is sometimes somewhat sculptured) 9
9. Second antennal joint distinctly shorter than the fourth; small ferruginous or rufo-piceous species 10
   Second antennal joint subequal with or longer than the fourth; black species 11

10. Prescutum broad, the posterior width half or nearly half as great as the anterior width; mesepisternum and sternum yellow, *erythrogastra* Ashmead.

Prescutum longer and more narrowed posteriorly, the posterior width distinctly less than half the anterior width; mesosternum black; mesepisternum black with a large pale spot, *abdominalis* Say.

11. First three tergites (not propodeum) and also the following highly polished and for the most part without sculpture; prescutum coarsely reticulate, with a tendency to form longitudinally raised lines ..... *hicoriae* Rohwer.

First three tergites and the following more or less granular; prescutum finely reticulate with a tendency to form transversely raised lines ..... *maculata* Say.

Xiphydria abdominalis Say.

Xiphydria abdominalis Say, Keating's Narr. Exped. appendix vol. 2, 1824, p. 311; Leconte, Writings of Say, vol. 2, 1859, p. 208.

Xiphydria attenuatus Norton, Proc. Ent. Soc. Phil. vol. 1, 1862, p. 144.

Xiphydria rufiventris Cresson, Tran. Amer. Ent. Soc. vol. 8, 1880, p. 34.

The type of *abdominalis* Say is lost, but a female coming from Harrisburg, Pennsylvania, has been chosen neotype. The types of *attenuatus* Norton and *rufiventris* Cresson are in the Academy of Natural Sciences of Philadelphia.

In describing this species Say states that the wings are fuliginous. The type of *rufiventris* Cresson has nearly hyaline wings, but a reared series shows that the color of the wings varies somewhat and some of the specimens have dark enough wings to agree with Say's definition of fuliginous. The author does not doubt that this is Say's species. The rearings also definitely associate *attenuata* Norton as the male.

Distribution:—Pennsylvania (Say, Norton); New York (Cresson); New Jersey (MacGillivray); Harrisburg, Pennsylvania (Champlain and Kirk); Plummer's Island, Maryland (H. S. Barber).

Host-plant:—*Tilia americana* Linnaeus.

Parasites:—*Pammegischia oveletii* Bradley and *Megarhyssa humida* (Say).

Patton (Can. Ent. vol. 11, 1879, p. 14) records *attenuatus*

Norton as reared from twigs of *Betula nigra* collected in Connecticut, and describes the female. His description does not agree well with the species here considered as *attenuatus*, but does agree with a female which is a different and undescribed species and bears a Bradley manuscript name. The author is inclined to believe that Patton did not have *attenuata* as here determined, because the female of *attenuata* does not have pale marks on the abdomen.

Xiphydria erythrogastra Ashmead.

Xiphydria erythrogaster Ashmead, Can. Ent. vol. 35, 1903, p. 233.

The type of this species is lost, but a male from Lyme, Connecticut, which agrees with the description and is without doubt Ashmead's species, has been made a neotype.

Distribution:—Avalon, New Jersey (type locality); Lyme, Connecticut (A. B. Champlain); Lancaster, New York (M. C. van Duzee); Washington, District Columbia (J. A. Hyslop); Cabin John Bridge, Maryland (H. S. Barber); Difficult Run, Virginia (T. E. Snyder).

Host Plant:—*Carpinus caroliniana* Walt.

Parasites:—*Megarhyssa humida* Say; *Pammegischia ovelletii* Bradley; *Eurytoma* species (not definitely proven).

Xiphydria maculata Say.

Xiphydria maculata Say, Bost. Jn. Nat. Hist. vol. 1, 1836, p. 221; Leconte's Ed., Say, vol. 2, 1859, p. 681.

Xiphydria albicornis Harris, Treat. Ins. Mass., 1841, p. 392.

Xiphydria mellipes Harris, Treat. Ins. Mass., 1841, p. 393.

The type of *maculata* Say is lost, but a specimen from Plummer's Island, Maryland, which agrees with the description and is the same as Indiana specimens, is considered neotype. The types of Harris's species may be in the Boston Society of Natural History.

Specimens of *maculata* having only four spots on the abdomen agree with the description of *mellipes*.

Distribution:—Widely distributed through Canadian and Transition Zones in the eastern United States and Canada.

Host-plants:—*Acer saccharinum* Linnaeus.

Parasites:—*Pammegischia burquei* Provancher and *Megarhyssa nitida* (Cresson).

Xiphydria hicoriae new species.

This species is closely allied to *maculata* Say but may easily be distinguished by the characters given in the foregoing key. The females are easily separated from those of *maculata* by the black flagellum and the males can be recognized from those of *maculata* by the more shining abdomen.

♀. Length to end of abdomen 12 mm.; sheath 2 mm. beyond the end of abdomen. Head between the eyes coarsely reticulate, with more or less distinct lines radiating from the ocelli; posterior orbits below obliquely striate; posterior orbits above and head behind the ocelli polished, practically without sculpture; orbital carinae strong almost complete; antennae rather long, extending to the tegulae, 17-jointed; second antennal joint more than half as long as the third and distinctly longer than the fourth; mesoscutum coarsely reticulate; prescutum well defined, V-shaped, longer than anterior width; scutellum reticulate; tergites shining, finely granular along the apical margins, apical tergites polished. Black; inner orbits, posterior margin of head (interrupted at top) two lines on vertex, dorsal margin of pronotum, spot on lower margin of pronotum and small lateral spots on tergites two, three, four and five yellowish white; wings subhyaline, venation dark brown.

Paratypes indicate the species may be 18 mm. long, have the axillae and lateral spots on tergites six and seven yellowish-white.

♂. Length 11 mm. Agrees well with female but the legs are dark piceous and the tergal spots are on segments two to six inclusive. In some males the four anterior legs below trochanters and the posterior tibiae and tarsi are rufo-piceous.

Distribution:—Harrisburg (type locality), Shiremenstown, Pennsylvania (W. S. Fisher); Syracuse, New York (Blackman). The species has also been taken at Westbury, Long Island (A. B. Champlain), and at Castle Rock, Pennsylvania.

Host-plant:—*Hicoria*.

Type:—Cat. No. 21554 U. S. Nat. Mus.

Xiphydria provancheri Cresson.

Xiphidion canadense Provancher, Nat. Can. vol. 7, 1875, p. 374 (not *Xiphydria canadensis* Provancher l. c. p. 373).

Xiphydria provancheri Cresson, Tran. Amer. Ent. Soc., vol. 8, 1880, p. 49.

Type in first Provancher collection, Public Museum, Quebec, bearing yellow label 138.

Distribution:—Canada, New Hampshire, Massachusetts (Cresson); Ithaca and Saranac Inn, New York; Roxboro, Pennsylvania.

Host plant:—"White birch." Specimens from Ithaca, New York, and the birch is probably *Betula populifolia* Marsh.

Xiphydria canadensis Provancher.

Xiphydria canadensis Provancher, Nat. Can. vol. 7, 1875, p. 373.

Type in first Provancher collection, Public Museum, Quebec, bearing yellow label 137.

This species although close to *tibialis* Say should be easily distinguished by the characters given in the above table.

Distribution:—Other than the Canadian specimens in the Public Museum of Quebec the only other specimen seen is a female collected on the sand at Virginia Beach, Virginia, by A. D. Hopkins.

Xiphydria tibialis Say.

Xiphydria tibialis Say, Keating's Narr. Exped. vol. 2, 1823, appendix p. 312; Leconte's Ed. of Say, vol. 1, 1859, p. 208.

The type of this species is lost, but a specimen from New Jersey agrees well with the type and is considered a neotype.

Distribution:—Pennsylvania (type locality); Canada (Harrington); New Jersey (collection and Smith 1910); Omega, Kansas (Crevecoeur).

Species not recognized.

Xiphydria basalis Say.

Xiphydria basalis Say, Boston Jn. Nat. Hist. vol. 1, 1836, p. 22; Leconte's Edit. Say, vol. 2, 1859, p. 681.

Konowia basalis (Say), MacGillivray, Bull. 22 Conn. Geolg. Nat. Hist. Survey, 1917, p. 169.

The type of this species is of course lost and there are no specimens in any of the collections studied which can be this species. Judging from the description it is correctly placed, by MacGillivray, in the genus *Konowia*. Konow treats this as a good species with *walshii* Westwood as a synonym.

Xiphydria walshii Westwood.

Xiphydria walshii Westwood, Thesaur. Ent. Oxon. 1874, p. 113; Kirby, Hym. Br. Mus. vol. 1, 1882, p. 371, pl. 14, fig. 14; Har-

rington, Trans. Roy. Soc. Can. sec. 4, 1893, p. 138; Konow, Syst. Zusam. Chalas, p. 313.

The type of this species is a unique male and is in the British Museum of Natural History. It is, as Harrington suggested, probably closely allied to *provancheri* Cresson, but the antennae have fewer joints, there are two pale spots on the scutum (a variable character), and the description infers the mesepisternum is black. My notes from the type are inadequate; they are in part; head behind supraorbital line smooth and shining; postocellar area parted by an impressed line; venation in general very like fig. 85 of MacGillivray, Proc. U. S. Nat. Mus. vol. 29, pl. 41. It seems to the author that this is a species of *Xiphydria* and it is possible that it is *provancheri* Cresson.

List of Nearctic Species.

abdominalis Say.
albicornis Harris=maculata Say.
attenuata Norton = abdominalis Say.
basalis Say.
canadensis Provancher
canadensis (Provancher) = provancheri Cresson.
erythrogastra Ashmead.
maculata Say.
mellipes Harris=maculata Say.
provancheri Cresson.
rufiventris Cresson=abdominalis Say.
tibialis Say.,
walshii Westwood.

The Rippon Collections go to the National Museum of Wales.

The collections of the late Robert H. F. Rippon, author of the superbly illustrated *Icones Ornithopterorum*, have been presented to the National Museum of Wales by Lord Rhondda, according to the London *Times*, as reported in *Science* for February 15, 1918. The majority of the specimens are said to be exotic, the insects to number over 100,000, including over 3,000 Papilionidae, over 5,000 Nymphalidae and over 40,000 Coleoptera, while dragonflies, mayflies, crickets, grasshoppers, stick- and leaf-insects, Diptera and Hymenoptera are expressly mentioned.

British Museum not to be used for Government Purposes.

It is stated by *Nature* that the British Government has abandoned the intention of using the British Museum building at Bloomsbury and the Natural History building at South Kensington for government departments, a decision which will meet with approval throughout the civilized world.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., MARCH, 1918.

An Appeal for Co-operation.

An editor is quite as likely to acquire a varied knowledge of human nature as those whose work is of a less literary character. There are the considerate and the inconsiderate contributors—appreciative and inappreciative respectively of the (often) wholly gratuitous labor which the editor performs for the journal, the authors and the subject or cause to which the publication is devoted. The topic is not a new one, nor have we any special present ground for complaint, but, as remarked on this page some years ago, it is well for all of us to be reminded from time to time of our shortcomings, our carelessnesses, our sins (if we cared to use so strong a word).

Our lives are brief, our working time is limited—these unwelcome truths become more vivid as we grow older. It seems as though almost half of that time were often wasted for us by the mistakes, the delays, the slipshod or careless doings of others, requiring many things to be done over again.

Many a paper presented for publication in a given periodical has evidently been prepared without any regard to the form and other requirements of the journal in question, even standing directions on the cover or elsewhere being, it would seem, utterly unheeded. It would *not* be unjust or too harsh to bluntly refuse such careless contributions, yet not infrequently the editor makes up the deficiencies, smoothes the asperities, writes to the author to send lacking data and so relieves the latter of drudgery from which he rightly should not be exempted.

The present is a time requiring all the co-operation that is possible. Who is so far-seeing as to be able to detect all the reactions and interactions of our daily deeds? May we not appeal, with successful results, to all who work and write to so care for the details of their labor that others may not, to their own disadvantage, have to gather up the loose ends?

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

Another European Anthomyiid in Illinois (Diptera).

In the collection of the Illinois State Natural Survey, there is a male of *Phaonia querceti* Bouché, a European species not hitherto recorded from North America. The specimen was taken at White Heath, April 14, 1909. (Cf. Ent. News, xxix, p. 32).—J. R. MALLOCH, Urbana, Illinois.

One Hundred and Fifty Years of Collecting.

In noting the death of William H. Baker, a British collector of insects, in May, 1917, in his ninety-third year, the *Entomologist* (London) says that the 13,000 British moths, of which the united collections of his father and himself consisted, are said to represent the labors of no less than 150 years. (Vol. l, p. 168, July, 1917.)

New Entomological Officials in Minnesota.

The Board of Regents of the University of Minnesota, at their meeting on January 18th, elected Dr. W. A. Riley, of Cornell, Professor of Parasitology and Chief of the Division of Economic Zoology. Associate Professor A. G. Ruggles was, at the same time, appointed Station Entomologist, which position carries with it the office of State Entomologist. At the December meeting of the Board, Professor F. L. Washburn, who has held the position of State Entomologist in Minnesota for nearly sixteen years, asked and obtained permission to be relieved of that position and its attendant police duties, and the action of the Board on the 18th was necessary to fill the vacancy thus caused.

Mr. Schaus's Collecting in Guatemala.

Mr. William Schaus, who has been collecting Lepidoptera in Guatemala for the past three years, writes us under date of January 19, 1918: "We have had severe cold here [Motagua valley, not far from Puerto Barrios], 54 at night, and, as there was no collecting, I have been separating my catch into families and repacking, so much less work to do later. I find I have 40.000 specimens which will take some time to classify and identify. Moreover, the cost of living is soaring, for here in the Motagua valley we are dependent upon the Fruit Co. for many supplies and many articles are no longer obtainable. Carbide has given out and no more will be received, so without my night work I am quite lost. We are only waiting for more favorable climatic conditions to go north and I hope to be in Washington before April is over."

New York Entomological Society Fund.

Through the generosity of Mr. Wm. T. Davis, a permanent fund for the general purposes of the New York Entomological Society has been established by an initial contribution of $500.

Gracilaria zachrysa Meyrick in New Jersey (Lep.).

This species, which has already been recorded on azaleas in New Jersey greenhouses, was at first thought to be rather rare and limited in distribution, but is now known to occur in many private greenhouses in various parts of the state and considered somewhat of a pest. In commercial houses it is not so common, as such firms hold over as little azalea stock as possible from year to year. The larvae, which are about one-fourth of an inch in length, mine the leaves and also fold over the tips and in some cases have been suspected of eating through the buds.

Felt, in his 13th Report as State Entomologist of New York, records it from that State and under the name *Gracilaria azaleae* Busck (Insec. Inscit. Menstr. 2; 1-2), which was later reduced to a synonym of *Gracilaria zachrysa* Meyrick. He also gives brief life-history notes and states that tobacco extract, either used as a spray or fumigant, appears to be effective in controlling it. In "Ziekten en Beschadigingen der Tuinbouwgewassen," by Brock en Schenk, it is stated that the species was introduced into Holland from Japan and infests all Japanese and *indica* varieties of azaleas; that greenhouse azaleas are injured during the winter and that the life-history is unknown in Holland. Stomach poisons are recommended and nicotine extract is suggested as a fumigant.

It undoubtedly occurs in Belgium, as it is frequently found in the larval and pupal stages on azaleas imported from that country and was evidently introduced into New Jersey largely in that way. To a less extent, it has been found on azaleas imported from Japan. In private greenhouses in New Jersey it is usually gotten rid of by hand-picking of infested leaves. In one large commercial establishment arsenate of lead paste at the rate of eight pounds to 100 gallons of water gave good results.—HARRY B. WEISS, New Brunswick, N. J.

An Unusual Bumblebees' Nest (Hym.).

Early in September, 1917, I received specimens of *Bombus pennsylvanicus* DeGeer from Mr. Court W. Ranslow, of Garrison, Missouri, with the statement that the colony from which these bees came built its nest in an abandoned nest of an English sparrow, in a tall elm tree in his front yard. He wrote, "The nest was a large, bulky one, with a roof, as the sparrows sometimes build them, and was twenty or more feet from the ground. We did not know that the bees were building in the nest until it blew out and fell to the ground.

My sister picked it up, thinking it was an empty birds' nest, but dropped it again quickly. They (the bees) were so ill-natured that it was not safe to go near them; so at night we scalded them. Is it common for this species of bee to utilize such places for their nests? I do not know whether the bees drove the sparrows out, or the sparrows deserted the nest voluntarily."

The Washington entomologists whom I have consulted and Mr. E. W. Nelson, Chief of the Biological Survey, have never heard of bumblebees living in birds' nests. The case seems interesting and exceptional. I send this account to *Entomological News* in the hope that it may bring out other accounts of strange nesting places of this bee.

In a later letter Mr. Ranslow wrote that a neighbor had told him that a colony of bumblebees entered an upstairs room in her house through an open window and built a nest in a box of old clothing that had been put away to cut up for carpet rags.—L. O. Howard, Washington, D. C.

Feeding Habits of a Harvest Spider (Phalangida).

In the morning of the 14th of October I was seated on my kitchen step at Iowa City, cracking hickory nuts. After a few of them had been broken open a large Harvest Spider (apparently our common *Liobunum*) came out from the nearby grass and made directly for the spot upon which the nuts had been cracked. Remembering what I had read of the carnivorous habits of these Arachnids, I offered a small *Balaninus* larva, about one-third grown, to see if it would be attacked, but no special response was evoked other than a rearing up of the Harvest Spider after the method common to this group when slightly excited. The larva was not picked up nor bitten. After a few moments the Harvest Spider picked up a piece of kernel, about a cubic millimeter in size, from a sound nut, holding it with the tips of the pedipalpi and nipping or scraping with the chelicerae, removing only minute particles which were evidently swallowed. This process continued for about 25 minutes and was watched through a low-powered lens. The observation was terminated by the interference of a large cricket running across the walk and bumping into the Harvest Spider which then retired into the grass, carrying the rest of the nut fragment with it. This note is offered to indicate that the habit of eating vegetable matter at times is not always for the purpose of obtaining water (as suggested by Warburton in the *Cambridge Natural History*, IV. 441), since the nuts were fairly well seasoned and most of the contained moisture must have been in the nature of oil. Possibly the odor was strongly attractive since the Harvest Spider ran directly from cover to the crushed kernels and did not appear to be easily disturbed while feeding.—H. F. Wickham, State University of Iowa, Iowa City, Iowa.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded.

The numbers in Heavy-Faced Type refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of papers containing new species are all grouped at the end of each Order of which they treat. Unless mentioned in the title, the number of the new species occurring north of Mexico is given at end of title, within brackets.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

2—Transactions, American Entomological Society, Philadelphia. **4**—The Canadian Entomologist. **5**—Psyche. **37**—Le Naturaliste Canadien, Quebec. **68**—Science, New York. **78**—Gardeners' Chronicle, London. **87**—Bulletin, Societe Entomologique de France, Paris. **99**—Cornell University Agricultural Experiment Station, Ithaca. **113**—Archives Italiennes de Biologie. **143**—Ohio Journal of Science, Columbus. **148**—New York Agricultural Experiment Station, Geneva. **153**—Bulletin, American Museum of Natural History, New York. **291**—Proceedings, Staten Island Association of Arts and Sciences. **313**—Bulletin of Entomological Research, London. **449**—British Museum (Natural History) Publications, London. **480**—The Annals of Applied Biology. **524**—Technical Bulletins, Entomology, University of California, Berkeley. **532**—Proceedings, National Academy of Sciences of the United States of America, Washington. **540**—The Lepidopterist, Official Bulletin, Boston Entomological Club. **546**—Illinois Biological Monographs, Urbana. **553**—Florida Buggist, Gainesville, Fla. **555**—Archivo de Anatomia e Anthropologia, Lisboa.

GENERAL SUBJECT. Brown, N. E.—The defertilisation of flowers by insects, **78**, lxiii, 4. **Emerson & Norton**—Removing insects from greenhouse plants without spraying and without injury to the plants, **68**, xlvii, 44. **Harmer, S .F.**—Alcohol and alcoholometers, **449**, Instruct. for Coll. No. 13. **Howard, L. O.**—A suggestion to morphologists and others, **68**, xlvii, 93-4. **Rocci, U.**—Contribution a la connaissance des graisses des insectes, **113**, lxvi, 53-6. **Wilson, R. N.**—Notes on some insects of South Florida in 1917, **553**, i, 40-3. **Yothers, W. W.**—The effects of the freeze of February 2-4, 1917, on the insect pests and mites on Citrus, **553**, i, 30-35, 39-40.

PHYSIOLOGY AND EMBRYOLOGY. Metz & Bridges—Incompatibility of mutant races in Drosophila, **532**, iii, 673-78.

MEDICAL. Bishopp & Wood—Preliminary experiments with sodium fluoride and other insecticides against biting and sucking lice, **5,** xxiv, 187-9. **Calvert, P. P.**—Insects and human mortality in war. (Old Penn, Philadelphia, Dec. 21, 1917, p. 297-302). **Edwards, F. W.**—Mosquitoes and their relation to disease, **449,** Econ. Ser. No. 4. **MacGregor, M. E.**—A summary of our knowledge of insect vectors of disease, **313,** viii, 155-63.

ARACHNIDA, ETC. Hirst, S.—Species of Arachnida and Myriopoda . . . injurious to man, **449,** Econ. Ser. No. 6.

NEUROPTERA, ETC. Waterston, J.—Fleas as a menace to man and domestic animals, **449,** Econ. Ser. No. 3.

Smith, L. W.—Studies of North American Plecoptera (Pteronarcinae and Perlodini), [10 new], **2,** xliii, 433-89.

ORTHOPTERA. Davis, W. T.—The local occurrence of Conocephalus strictus, **291,** vi, 149. **Fulton, B. B.**—The tree crickets of New York: life history and bionomics, **148,** Rept. 34, 433-77.

HEMIPTERA. Adkins, W. S.—Some Ohio Heteroptera records, **143,** xviii, 58-61. **Cummings, B. F.**—The bed bug, its habits and life-history and how to deal with it, **449,** Econ. Ser. No. 5. **Hollinger, A. H.**—Phenacoccus stachyos Ehr. (= P. pettiti Holl.), **4,** 1918, 23-4. **Newstead, R.**—Observations on scale-insects (Coccidae)—V, **313,** viii, 125-34. **de la Torre Bueno, J. R.**—Some Heteroptera from the Parry Sound district, Ontario, **4,** 1918, 24-5. **Van Duzee, E. P.**—Catalogue of the Hemiptera of America, north of Mexico excepting the Aphididae, Coccidae and Aleurodidae, **524,** ii, 1-902.

Knight, H. H.—A revision of the genus Lygus as it occurs in America, north of Mexico, with biological data on the species from New York [many new], **99,** Bul. 391. **Olsen, C. E.**—North American Cicadellidae in the collection of the American Museum of Natural History. Subfamily Cicadellinae [1 new], **153,** xxxviii, 1-6. **Osborn & Drake**—Some (7) new species of Nearctic Tingidae, **143,** xvii, 9-15.

LEPIDOPTERA. Maheux, G.—Sur les poils urticants des chenilles, **37,** xliv, 81-3. **Preston, C. E.**—Notes from Provincetown, **540,** ii, 1-2. **Rocci, U.**—Sur une substance venereuse contenue dans les Zygenes, **113,** lxvi, 73-96. **Stowers, N.**—Hints for amateurs, **540,** ii, 4-6. **Verity, R.**—Une nouvelle methode de montage et de conservation des lepidopteres par series, **87,** 1917, 312-16. **Wolley Dod, F. H.**—Notes on Barnes & McDunnough's "Check list of lepidoptera of Boreal America," **4,** 1918, 8-16 (cont.).

Cassino, S. E.—A new Apantesis, **540,** ii, 2-4. **Swett, L. W.**—Geometrid notes. On the genus Xanthorhoe [3 new], **4,** 1917, 17-23. Geometrid notes [1 n. sp.], **5,** xxiv, 190-1.

DIPTERA. Bishopp, F. C.—The distribution of the nose fly and other species of Gastrophilus in the U. S., **5**, xxiv, 182-7. **Guerreiro, L.**—Notas sobre a Lucilia caesar seu estudo no Instituto de Anatomia de Lisboa, **555**, iii, 173-201. **Morris, H. M.**—On the larval and pupal stages of Bibio johannis, **480**, iv, 91-114.

Hine, J. S.—Descriptions of robber-flies of the genus Erax [3 new], **143**, xvii, 21-22.

COLEOPTERA. Shelford, V. E.—Color and color-pattern mechanism of tiger beetles, **546**, iii, 134 pp.

HYMENOPTERA. Brues, C. T.—Note on the ichneumonid genera Cyanocryptus and Lamprocryptus. Note on the adult habits of some hymenopterous egg-parasites of Orthoptera and Mantoidea, **5**, xxiv, 191-5; 195-6. **Cockerell, T. D. A.**—The bee-genus Brachynomada, **4**, 1918, 26-8. **Parrott & Fulton**—The cherry and hawthorn sawfly leaf-miner, **148**, Rept. 34, 403-32. **Wheeler, W. M.**—The temporary social parasitism of Lasius subumbratus. Notes on the marriage flights of some Sonoran ants. The pleometrosis of Myrmecocystus, **5**, xxiv, 167-76; 177-80; 180-2.

Études de Lepidoptérologie Comparée. Vol. XIV, 1917. By Charles Oberthür. This volume consists of 474 pages and numerous plates. Probably the parts of most interest to the American student are the studies and genitalic illustrations of the genus *Lycaena*. Doctor Jacques Reverdin presents an illustrated article on *Lycaena argus* and its varieties. Dr. T. A. Chapman describes a new species, *Lycaena aegus*. This is closely related to our species, *melissa*, and the author says *aster* from Labrador does not differ to a specific extent from *melissa*. The types of *aster* came from Newfoundland. Dr. Chapman's paper is illustrated by 20 plates. This is followed by a beautifully illustrated article on *Actinote* by M. Oberthür, with 11 plates in color. M. F. Le Cerf contributes an article on the Aegeriidae with seven plates. This contains species of our fauna and also some new genera and species are described. Biological observations and figures of certain species of *Lycaena* are given. The work is up to the beautiful standard of those preceding it and is a splendid contribution to lepidopterological studies.—Henry Skinner.

The Latrodectus mactans and the Gliptocranium gasteracanthoides in the Department of Arequipa, Peru. By Dr. E. Escomel, Arequipa, Peru. New Orleans Medical and Surgical Journal, Vol. 70, p. 530, 1917. This article refers to certain spiders whose bite kills persons or makes them very sick. It has interest for readers of

ENTOMOLOGICAL NEWS as one of the species is found in the United States. The author states that *L. mactans* is widely distributed over the globe, being found in North and South America, Europe, Africa and Oceania. Its habits, food and general zoological characters are considered. The effect of the poison and the differential diagnosis are detailed. Three cases are described and the treatment given; they all recovered. The other species, *G. gasteracanthoides*, is also fully described and the death of a small child, nine days after having been bitten, is mentioned. Five other patients were bitten, but all recovered. The remedy advocated is a saturated solution of potassium permanganate used externally. The author also used the drug internally in solution in the strength of 1 to 4,000.—HENRY SKINNER.

Doings of Societies.

Feldman Collecting Social.

Meeting of October 17, 1917, at the home of H. W. Wenzel, 5614 Stewart Street, Philadelphia. Nine members present, President H. A. Wenzel in the chair.

Coleoptera—Mr. Laurent exhibited a series of *Papilio glaucus* Linnaeus, collected at Mt. Airy, Philadelphia, showing great variation in maculation; also recorded the capture of a male *Papilio cresphontes* at Mt. Airy, August 24, and stated that this was the only specimen he had ever seen in the vicinity of Philadelphia in the forty years he had been collecting, but that occasional specimens had been captured by other collectors in years past. Mr. Daecke recorded the rearing of *Pyrausta pertextalis* Led. from rolled up leaves of violets; he stated that he had collected in the past summer a caterpillar of *Apatelodes torrefacta* S. & A. in its fifth stage, that is with yellow hair; it pupated on account of lack of food without going through the sixth larval stage which has gray hair; the ability of larvae to omit instars was discussed. Mr. Daecke further recorded having taken in a wheat-stubble field at Camp Hill, Pennsylvania, October 6th, a number of caterpillars of *Protoparce quinquemaculata* Haw. in all stages on ground cherry; he pointed out that the younger specimens on account of the advanced date could never reach maturity; all the specimens of the last instar were almost black, but they had the usual lateral stripes.

Coleoptera.—Mr. Daecke recorded *Cicindela sexguttata* form *harrisi* from all the hilly sections around Harrisburg, Pennsylvania, the captures dating from July 4 to Sept. 22. Mr. H. W. Wenzel exhibited a cardboard box that had contained red pepper which was riddled by *Sitodrepa panicea;* the inside of the box was lined with the empty

cocoons. The same speaker reported from Springfield, Delaware County, Pennsylvania, Sept. 23 and 29, *Cicindela punctulata*, *12-guttata*, and *repanda*, and remarked that this was after several hard frosts. Mr. J. W. Green recorded from Phillipsburg, New Jersey, *Languria lecontei* on giant ragweed, July 1; *Saprinus fitchii*, May 20; and *Dialytes striatulus* Sept. 9.—J. W. GREEN, *Asst. Secy.*

Meeting of November 21st, 1917, at the same place. Eleven members present, Pres. H. A. Wenzel in the chair.

Diptera.—Mr. Daecke exhibited the galls of *Eurosta conspurcata* Doane and *E. elsa*, Daecke, the differences being very striking. Mr. Hornig recorded fourteen species of mosquitoes found this summer within the Philadelphia city limits:—Malarial: *Anopheles punctipennis* Say and *A. quadrimaculatus* Say; Saltmarsh: *Aedes sollicitans* Walk., *A. taeniorhynchus* Wied., *A. cantator* Coq. and *Culex salinarius* Coq.; Swamp: *Psorophora ciliata* Fabr., *Aedes sylvestris* Theob. and *A. cantans* Meig.; Wood; *Aedes triseriatus* Say and *Psorophora sayi* Dyar and Knab; House: *Culex restuans* Theob., *C. pipens* Linne and *C. saxatilis* Grossb.

Coleoptera.—Mr. Hornig exhibited specimens of *Popilia japonica* Newm., an injurious insect which has recently gained a foothold at Riverton, New Jersey, having been introduced from Japan through Dreer's Nurseries. Mr. J. W. Green exhibited *Laccophilus inconspicuus* Fall from Edmonton, Canada, vi-12 and *Nitidula nigra* Schaeffer same place, viii-6, both collected by F. S. Carr. Mr. Geo. M. Greene exhibited the following species all collected this year by himself; *Panagaeus fasciatus* Say, East Falls Church, Virginia, vii-1, *Zenoa picea* Beauv., same place, vi-3, *Bellamira scalaris* Say, same place, vi-3, *Eburia quadrigeminata* Say, at light, Plummer's Island, Maryland, vii-21, *Chionanthobius schwarzi* Pierce, same place, viii-5, on *Chionanthus* (fringe tree), *Octotoma plicatula* Fabr., same place, vi-24. and *Acallodes ventricosus* LeC., Maryland shore near Plummer's Is., vi-23. He also exhibited the series of *Pytho* and *Tricrania* recorded at the April meeting. (See p. 39, this volume).

Meeting of December 19th, 1917, at the same place. Nine members present, Pres. H. A. Wenzel in the chair.

Coleoptera.—Dr. Castle exhibited four specimens of a *Pachnaeus* he had collected in Detroit, Florida, v-15 and 16, which do not agree with our two species.

Mr. Geo. M. Greene called attention to an easily explained "minor" mistake occurring in the minutes in Ent. News xxv, p. 89, Feb., 1914, where he mentions Barren Hill, Virginia—this should be Miner's Hill. Adjourned to the annex.—GEO. M. GREENE, *Secretary.*

EXCHANGES.

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

☞ **These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.**

Wanted for cash or exchange.—Buprestidae and Cerambycidae new to my collection.—J. N. Knull, Hummelstown, Pa.

Duplicate Rhopalocera from Japan and Formosa. Desiderata—Those from the world.—S. Satake, No. 48 Aoyamaminamimachi 5 chome Tokyo, Japan.

Cicindelidae Wanted—I wish to obtain for purposes of study, Cicindelas, "tiger beetles," from the Southern and Gulf States. Correspondence desired.—Edwin E. Calder, Longmeadow, R. I.

Wanted—North American Coleoptera for exchange. Please send lists to V. Harnach, 1759 W. 20th St., Chicago, Illinois.

South American Erycinidae and Lycaenidae are offered in exchange for North American moths (Noctuids, Geometers, etc.).—G. Chagnon, P. O. Box 521, Montreal, Canada.

Wanted—Monog. des Buprestides—Kerremans, Vol. II, Pt. 1; Bibliog. Econ. Ent., Pt. IV; Mo. Bul. Cal. Com. Hort., Vol. I, No. 9, and Vol. II, Nos. 3 and 4.—E. A. Klages, Crafton, Pa.

Wanted—Friendly correspondence and exchange of Lepidoptera. Send your address and offerta. Will reply promptly.—F. E. Potter, 267 So. Main St., New Britain, Conn.

For Exchange—A few specimens, mostly Sphingidae and Saturniidae common to this region, for species from some other part of the country.—Dr. Elmer T. Learned, Fall River, Mass.

Lepidoptera—I have for exchange first class specimens of *Papilio floridensis, palamedes, Pholus fasciatus, tersa, hylaes, undulosa, Apatela tritona, Leucania pilipalpis, extincta, subpunctata, Gortyna u-album, Syneda graphica,* and hundreds of others from Pa. and Fla. Send lists, or address F. W. Friday, 82 Jacob St., Fair Haven, Pittsburgh, Pa.

Catocalae—For exchange perfect specimens of *C. pura, C. aspasia* and var. *sara, C. faustina* var. *lydia, C. praeclara.* Desire other *Catocalae.* Some of the common species wanted.—John H. West, 2057 E. York St., Phila., Pa.

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2074.—**Garnett** (R. T.).—Notes on Dinapate wrightii (Ent. News, **29**, 41-44, 1 pl., '18) ..... .20

DIPTERA.

2075.—**Van Duzee** (M. C.).—New North American species of Dolichopodidae [5 new], (Ent. News, **29**, 45-51, ill., '18) ..... .15

HYMENOPTERA.

2076.—**Cockerell** (T. D. A.).—The Bembicine wasps. (Ent. News, **29**, 59-60, '18) ..... .10

2077.—**Girault** (A. A.).—The North American species of Cerchysius, females [1 new], (Ent. News, **29**, 65-66, '18). .10

LEPIDOPTERA.

2078.—**Skinner** (H.).—Argynnis apacheana, a new name (Ent. News, **29**, 67-68, '18) ..... .10

ODONATA.

2079.—**Stout** (A. L.).—Variation in labial characters in the nymph of Gomphus spicatus (Ent. News, **29**, 68-70, ill., '18) ..... .10

HEMIPTERA.

2080.—**Barber** (H. G.).—Corrections to "New York Scolopostethi" (Ent. News, **29**, 51-52, '18) ..... .10

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